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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,286	01/07/2002	Sari Korpela	297-010742-US(PAR)	9028
2512 PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824	7590 10/05/2007		EXAMINER JUNTIMA, NITTAYA	
			ART UNIT 2616	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/030,286

Applicant(s)

KORPELA ET AL.

Examiner

Nittaya Juntima

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/10/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-21 are pending is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-21 is/are allowed.
- 6) ☒ Claim(s) 1-14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 7/10/2007.
2. Claims 1-14 and 16-21 are pending.
3. Claims 18-21 are allowed.
4. Claims 1-14 and 16-17 are currently provisionally rejected on the ground of nonstatutory obviousness-type double patenting.
5. Claims 1, 6-8; and 11-13 remain rejected under 35 U.S.C. 102(e).
6. Claims 9-10, 14, and 16-17 remain rejected under 35 U.S.C. 103(a).

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-14 and 16-17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 11/457,879 in view of Alamouti (US 6,185,258 B1). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claim limitations of claims 1-14 and 16-17 of the instant application reads on the claim limitations of claims 1-15 of the copending application with the exception that the copending application does not claim the step of (i) enabling a receiver to associate a correct transmission antenna specific channel coefficient with each transmitted symbol by starting the transmission pattern from the beginning in the beginning of each frame as recited in independent claims 1, 12, 13, 17. However, Alamouti teaches enabling a receiver (20, Fig. 1) to associate a correct transmission antenna specific channel coefficient (h_0 or h_1) with each transmitted symbol by starting the transmission pattern from the beginning in the beginning of each frame (as shown in eq. (3), h_0 and h_1 are associated with the received signal $r(t)$ which comprises of the signals s_i and s_j from pattern shown in Table 1 transmitted from associated antenna 11 and antenna 12 from the beginning of a frame, i.e., time slot "t", col. 3, lines 41-col. 4, lines 50; note that because a number of consecutive symbols shown in Table 1 must be transmitted over a period of time as the sequence of signals in Table 1 cannot go on indefinitely, therefore, a frame must be constructed of a certain number of consecutive symbols). Therefore, it would have been obvious to include the teaching of Alamouti such that the step of (i) would be included as recited in independent claims 1, 12, 13, and 17. The suggestion/motivation to do so would have been to indicate the beginning of the frame, e.g., time slot "t", to a receiver by transmitting a known sequence of symbols, each associated with an antenna, from the beginning of the frame.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1, 6-8, and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Alamouti et al. ("Alamouti") (USPN 6,185,258 B1).

Regarding claim 1, Alamouti teaches a method for transmitting a certain sequence of symbols (s_i, s_j), said method comprising:

Constructing a frame of a certain number of consecutive symbols (s_i, s_j) (because a number of consecutive symbols shown in Table 1 must be transmitted over a period of time as the sequence of signals in Table 1 cannot go on indefinitely, col. 4, lines 14-24, therefore, a frame must be constructed of a certain number of consecutive symbols).

Transmitting the symbols belonging to the sequence using at least two antennas (antenna 11 and antenna 12 in Fig. 1, and col. 4, lines 14-24)

Wherein the transmission of each symbol of the sequence of symbols is with a certain transmission pattern (Table 1) that indicates through which transmission antenna each transmitted symbol is transmitted (Table 1 indicates which antenna transmits which symbol).

Starting the transmission of the sequence of symbols from a predefined antenna (antenna 11). See col. 3, lines 62-col. 4, lines 24, and claim 6.

Starting the transmission pattern (Table 1) from the beginning in the beginning of each frame (the transmission pattern shown in Table 1 is started from the beginning at time “t” in the beginning of a frame, col. 4, lines 14-24).

Enabling a receiver (20, Fig. 1) to associate a correct transmission antenna specific channel coefficient (h_0 or h_1) with each transmitted symbol by starting the transmission pattern from the beginning in the beginning of each frame (as shown in eq. (3), h_0 and h_1 are associated with the received signal $r(t)$ which comprises of the signals s_i and s_j from pattern shown in Table 1 transmitted from associated antenna 11 and antenna 12 at the beginning of a frame, i.e., time slot “t”, col. 3, lines 41-col. 4, lines 2-50).

Regarding claims 6, 7, and 8, Alamouti teaches that each frame (because a number of consecutive symbols shown in table 1 must be transmitted over a period of time as the sequence of signals cannot go on indefinitely, col. 4, lines 14-24, therefore, a frame must be constructed of a certain number of consecutive symbols) consists of a certain number of consecutive time slots (time periods, i.e. t , $t+T$, ...) and each time slot consists of a certain number of consecutive symbols, and said method further comprises transmitting “one/at least one/at least in one of the time slots at least one” symbol belonging to the sequence of symbol in each time slot (see table 1, col. 3, lines 62-col. 4, line 24, and claim 6).

Regarding claim 11, Alamouti teaches that the sequence of symbols is transmitted in downlink direction in a cellular network (see Fig. 1 and col. 3, lines 62-col. 4, line 24).

Claim 12 is an apparatus (transmitter 10 in Fig. 1) claim corresponding to method claim 1, and is rejected under the same reason set forth in the rejection of claim 1 with the addition of an indicator (an indicator must be included in order to indicate antenna 11 to transmit the first symbol belonging to the sequence, col. 3, lines 60-col. 4, lines 24), a starter (a starter must be included in order for the transmitter to start the transmission pattern from the beginning in the beginning of a frame, col. 3, lines 60-col. 4, lines 24).

Claim 13 is network element (transmitter 10 in Fig. 1) claim with two antennas (antenna 11 and antenna 12), corresponding to method claim 1, and is rejected under the same reason set forth in the rejection of claim 1 with the addition of a controller (a controller must be included in order to control the transmitter 10 to transmit a sequence of symbols s_i, s_j to a transmission pattern shown in Table 1, col. 3, lines 60-col. 4, lines 24), an indicator (an indicator must be included in order to indicate antenna 11 to transmit the first symbol belonging to the sequence, col. 3, lines 60-col. 4, lines 24), and a starter (a starter must be included in order for the transmitter to start the transmission pattern from the beginning in the beginning of a frame, col. 3, lines 60-col. 4, lines 24).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all \

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obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti et al. ("Alamouti") (USPN 6,185,258 B1).

Regarding claim 9, Alamouti does not teach that the length of the transmission pattern is larger than the length of the frame. However, it would have been an obvious matter of design choice to include that the length of the transmission pattern is larger than the length of the frame, since such a modification would have involved a mere change in the length of a component which involves only routine skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Claim 17 is a computer program product claim having functions corresponding to method claim 1 with an exception that Alamouti does not explicitly teach a computer usable medium having computer readable codes embodied therein for causing a computer to activate functions of a device (Transmitter 10 in Fig. 1, col. 3, lines 60-col. 4, lines 24). However, it would have been obvious to one skilled in the art at the time of the invention to include a computer usable medium having computer readable codes embodied therein for causing a computer to activate functions of a device, such as transmitter 10, into the computer program product as recited in the claim such that the computer readable codes can be portable and conveniently installed on other transmitters.

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13. Claims 10, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti et al. ("Alamouti") (USPN 6,185,258 B1) in view of an admitted prior art (the specification).

Regarding claim 10, Alamouti teaches that the transmission of the sequence of symbols is started from the primary antenna (antenna 11), see table 1 and col. 3, lines 62-col. 4, lines 24.

However, Alamouti does not teach that the primary antenna transmits a common pilot signal.

An admitted prior art teaches that when transmission diversity and two antennas (TX1 and TX2 in Fig. 3) are in use, antenna TX1 transmits a common pilot signal (CPICH 201, page 4, lines 19-21).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Alamouti such that the primary antenna transmits a common pilot signal would be included as recited in the claim. The suggestion/motivation to do so would have been to enable one of the antennas to transmit the common pilot channel similarly as when no transmission diversity is employed as taught by the admitted prior art (page 4, lines 20-21).

Regarding claims 14 and 16, Alamouti teaches that the network element (transmitter 10 in Fig. 1 of Alamouti) is a radio network controller/a base station (a base station, col. 1 lines 56-62 and col. 3, lines 26-37 and 66-64). However, Alamouti does not teach a radio network controller/a base station of a spread spectrum system.

The admitted prior art teaches a radio network controller (a base station) of a spread

spectrum system (WCDMA, page 1, lines 17-20, page 3, lines 4-8, and page 4, lines 19-21).

Given the teaching of the admitted prior art, it would have been obvious to one skilled in the art at the time the invention was made to include that the radio network controller is of a spread spectrum system as recited in the claim. The suggestion/motivation to do so would have been to enable the base station in the WCDMA network to provide transmission diversity using multiple antennas as taught by the admitted prior art (page 1, lines 18-20 and page 4, lines 19-21).

Response to Arguments

14. Applicant's arguments filed 7/10/2007 have been fully considered but they are not persuasive.

A. In the remarks regarding claim 1, applicant argues that Alamouti does teach (i) the sequence has any correlation with frames, (ii) that the sequence be started a new at the beginning of each frame, and (iii) correctly associating the antenna specific channel estimates with the appropriate transmission antennas as recited on page 12 of the remarks.

In response, regarding (i) it is clear from the teaching of Alamouti that the sequence of symbols with a certain transmission pattern transmitted in time slots as shown in Table 1 (col. 4, lines 14-24) must be transmitted within a frame comprising a number of time slots, e.g., from time slot "t" to time slot "t+XT", where X is a positive integer, as the sequence of signals cannot go on/be transmitted indefinitely. Therefore, the sequence of symbols correlates with a frame, i.e., the sequence is transmitted in a frame. Note that a plurality of frames is not claimed, therefore, the correlation between the sequence and "frames" is irrelevant.

Regarding (ii), note that claims 1, 12, 13, and 17 do not claim “it [transmission sequence] be started anew at the beginning of each frame” (clarification added). However, Almouti clearly teaches that the transmission pattern is started anew at the beginning of a frame (the transmission pattern shown in Table 1 is started from the beginning at time “t” in the beginning of a frame). Since there is no structural or functional difference between (a) the claimed “transmission pattern” and “each frame” and (b) Almouti’s transmission pattern and inherent frame, therefore, Almouti teaches starting the transmission pattern from the beginning in the beginning of each frame as claimed.

Regarding (iii), note that claims 1, 12, 13, and 17 do not claim “correctly associating the antenna specific channel estimates with the appropriate transmission antennas” as argued. However, Almouti clearly teaches that each of the antenna specific channel coefficients (h_0 and h_1) are associated with each of the transmitted symbols (s_i and s_j) as claimed. See eq. (3) and col. 3, lines 44-col. 4, lines 50.

Therefore, the rejection is maintained.

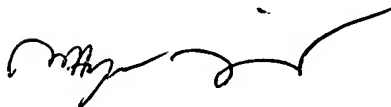
Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s

supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Nittaya Juntima
Patent Examiner, AU 2616
September 28, 2007